

THE

Soybean Digest



Official Publication
OF
THE AMERICAN SOYBEAN ASSOCIATION

VOLUME 1 • NUMBER 3



JANUARY • 1941

Professional Directory

Brokers, chemists and all classes of professional men with an interest in the soybean industry are invited to list their firms in the professional directory of *The Soybean Digest*, official publication of The American Soybean Association.

Rates furnished upon request.

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THE *Soybean Digest*

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If You Are a Soybean Grower

and

If You Have Poultry or Livestock...

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A PIONEER DIES

Soybean Industry Loses A. E. Staley, Sr., Who Began Processing Soybeans in 1922

A. E. Staley, Sr., 73-year-old founder of the A. E. Staley Manufacturing Company, Decatur, Ill., and an early pioneer in the soybean industry, died Dec. 26 at his winter home in Miami, Fla. He was generally regarded as the father of the soybean industry.

As a barefoot boy born of English parents on a farm near Julius, N. C., Mr. Staley first became interested in soybeans. A missionary from China gave his father a handful of soybeans from a supply of about a bushel she had brought to the United States.

Boy Plants Beans

His father turned them over to young Staley, who planted them in two rows in

Sept. 15, 16 Set As Dates For Convention

Sept. 15 and 16 have been set as the dates for the 1941 convention of the American Soybean Association, according to George M. Strayer, Hudson, Iowa, executive secretary.

Business sessions will be held at Des Moines, Iowa, Sept. 15 and a field day at Iowa State College in Ames is scheduled Sept. 16 as additional emphasis on growers' interests, to be featured at this year's convention.

Breeding work and hybridization plots will be toured, where new varieties are being developed. Cultural practices also will be studied, and a tour of the chemical engineering laboratories is planned.

The committee for the convention will consist of representatives of Iowa processors, Iowa growers, the Des Moines chamber of commerce and Iowa State College, Mr. Strayer said.

—sbd—

J. W. Townsend Joins Soybean Digest Staff

J. W. Townsend of Celina, Ohio, joined the staff of *The Soybean Digest*, Jan. 2. He will assist George Strayer, executive secretary of the American Soybean Association and editor of *The Digest*, with preparation of editorial material.

Townsend is a graduate of Ohio State University, and has taken graduate work in agricultural economics and technical journalism at Iowa State College. His experience consists of two years as graduate assistant in the bulletin office of the Iowa Agricultural Experiment Station, 10 months as news editor of *The Fayette County Union*, West Union, Iowa, and 7 months as news editor of *The Waverly Journal*, Waverly, Iowa, where he was employed before joining the staff of *The Digest*.

the vegetable garden, weeded them, picked them, and saved the seed for planting the next year. There are still probably many beans in North Carolina parented by that original handful planted in the Staley vegetable garden.

Mr. Staley's career as a manufacturer began in the starch industry, and for many years he nearly forgot about soybeans. Soybeans were first recalled to his mind by large quantities of diseased corn brought to the Staley plant at Decatur.

If the company could get farmers to grow soybeans, it might indirectly help the corn crop, and the company could obtain more and better corn closer to home, Mr. Staley thought.

Processing Begins

"It was a slow process," Mr. Staley once said of his company's efforts to get the Illinois farmers to grow soybeans, "but things started to change about 1922 when we started to process beans. Even for a time after we started to process, we had trouble. We couldn't sell the products. We had to educate feeders and grain men just as we had educated farmers."

He was the recipient of two honorary degrees, an honorary doctor of science degree from Millikin University at its commencement exercises last June, and



Augustus Eugene Staley, Sr.

a doctor of laws degree from High Point College, High Point, N. C., the previous year.

Son Makes Trip

A. E. Staley, Jr., who succeeded his father eight years ago as president of the A. E. Staley Manufacturing Company, accepted the degree at High Point for his father, who was unable to make the trip.

Surviving Mr. Staley are: his widow; two sons, A. E. Staley, Jr., and A. Rollin Staley, both of Decatur; three daughters, Mrs. H. P. Dunlap of Decatur, Mrs. Ruth Staley Hunt of Highland Park, Ill., and Mrs. David Hugh Annan of Chicago, Ill. Eight grandchildren also survive.

Meal Isn't Dangerous Cargo

A brief protesting the proposed classification of soybean oil cake and meal as "hazardous articles" under the Dangerous Cargo Act of Oct. 9, 1940, has been filed with the bureau of marine inspection and navigation, by T. C. Burwell, vice-president and traffic manager of A. E. Staley Manufacturing Company, Decatur, Ill. The brief was dated Jan. 10.

Proposed regulations to be issued would classify soybean oil meal or cake as articles subject to spontaneous combustion, and therefore "hazardous articles." Under the provisions of the act, such articles can be shipped only between decks and not in the hold of a ship.

During the 18 years that the company has been processing soybeans it has had no experience whatever to indicate that soybean oil cake or meal has any tendency toward spontaneous combustion, the brief said.

Such a regulation would increase trans-

portation rates, since boats could no longer be chartered for shipment of meal in solid boatloads, and would so handicap the American product in the foreign market, where it competes principally with meal produced in Manchuria, that it would be prohibitive to the successful processing of soybean oil cake and meal in this country, the brief charged.

This would tend to depress the growing of soybeans in this country, through the lower price processors would be compelled to offer for beans to meet the "ridiculously low" world market price of soybean oil meal.

Among documents attached as appendices to the brief were a letter from M. Campbell, manager of the Automobile Insurance Company, marine insurance underwriters, and a report of chemical engineers of the Staley plant on the combustibility of soybean oil meal.

Campbell's letter stated that his com-
(Continued on inside back cover)

Illinois Tells of Progress...

Farm and Home Week on Urbana Campus Included Many Soybean Discussions, Reported in This Issue

Predicts 90 cent Average Price

ILLINOIS farm prices of soybeans will average about 90 cents per bushel for the year beginning October, 1940, and ending September, 1941, if past relationships continue to function during the current year, predicted Dr. G. L. Jordan, agricultural economist at the University of Illinois, in a paper given Jan. 7 at the Illinois Farm and Home Week.

Two major factors are at work in opposite directions, Dr. Jordan said. The chief factor pointing to higher soybean prices is the big increase in industrial income anticipated as a result of large defense expenditures, which will strengthen the demand for feedstuffs, including soybean oil meal and its competitor, cottonseed meal.

Tending to depress the outlook is the European blockade which increases the pressure from fats and oils produced in other regions of the world and prevents normal exports to take place. This results in a low price for a second major soybean product, soybean oil.

If this international situation were not a factor, soybean prices probably would average about \$1.00 a bushel at the farm through the year ending September, 1941,

according to Dr. Jordan's estimates.

These estimates are based on the assumption that national income will be 110 percent of the 1924-29 average as compared with 89 percent in 1939-40, Dr. Jordan emphasized. If national income should reach only a level of 105 percent, Illinois farm price of beans would be expected to average only about 83 to 85 cents per bushel.

On the other hand, if it appears later that the methods of financing the armament program point definitely to serious inflation, the price of soybeans may be bid up in anticipation of a later increase in consumer purchasing power.

The fact that farmers marketed a relatively small fraction of their beans immediately after harvest this year tended to strengthen the fall price and doubtless accounted for a much larger than seasonal rise in price between Oct. 15 and Nov. 15, Dr. Jordan noted. A continuation of this holding policy may result in more orderly marketing and a reduction in the amount of variation in price from month to month, he said.

A cyclical increase in demand is under way now, which, if it continues, will have

a tendency to strengthen prices. Thus higher prices are possible during the next few months even with a larger than usual fraction of the crop coming on the market at that time.

Because of this cyclical improvement in demand, therefore, soybean prices may follow the normal seasonal trend, Dr. Jordan concludes, and if the estimate of 90 cents average for the year is correct, following would be the prices by months, at the farm in Illinois, from October, 1940 to September, 1941:

October	....	\$ .73	April	....	\$ .99
November	....	.75	May	....	1.03
December	....	.82	June	....	1.05
January	....	.91	July	....	.97
February	....	.96	August	....	.85
March	....	.98	September	....	.76

Soybean prices are determined by the prices of its products, soybean oil meal and soybean oil, Dr. Jordan pointed out, which are in turn affected by a large number of factors, and bearing a close relationship with the price of cottonseed oil and cottonseed meal, since the major share of cottonseed and soybean meals and cottonseed and soybean oils find their way into similar market channels.

The prices of both cottonseed meal and soybean oil meal have been shown to be related not only to supply of protein concentrates but to consumers' incomes, number of livestock on feed and total supply of all feed grains, Dr. Jordan explained in his analysis. The prices of cottonseed oil and soybean oil are closely related to the supplies of all fats and oils, and to consumers' incomes.

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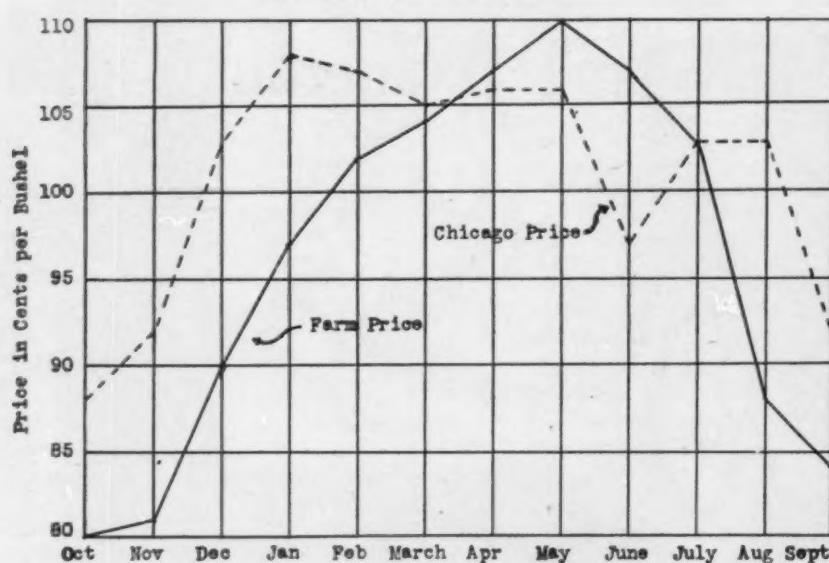
Soybean Meal Makes Big Gains in Indiana

Sales of soybean oil meal in Indiana increased from 12,000 tons in 1937 to 33,000 tons in 1939, according to figures presented to a University of Illinois Farm and Home Week audience by W. B. Nevens, professor of dairy cattle feeding.

This represented 26 percent of all protein supplements sold in Indiana, as compared to 9 percent in 1937. Gains of soybean oil meal were made at the expense of wheat bran and middlings, linseed meal, cottonseed meal, and brewers' and distillers' grains.

Wheat bran and middlings still comprise the bulk of protein concentrates sold in Indiana, 93,000 tons being sold in 1937, 76,000 in 1938 and 78,000 in 1939. With 19,000 tons sold in 1938 soybean oil meal achieved second place in Indiana sales, above cottonseed meal, the third

AVERAGE MONTHLY PRICES OF SOYBEANS ON FARMS AND AT CHICAGO, 1933 TO 1939



The average seasonal price trend of soybeans on farms and at Chicago is shown on this chart drawn from bureau of agricultural economics statistics. Farm prices don't follow Chicago prices too closely at any time, and in the spring months, during seeding time, rise far above Chicago prices, which are based largely on soybeans for crushing, to reach a peak in May.

most important, of which 13,000 tons were sold.

Soybean oil meal has not been demonstrated to have any unfavorable effect on the composition or flavor of butterfat, but whole soybeans should not comprise more than 25 percent of the grain mixture, or they may induce a gummy consistency in the body of the butter, Professor Nevens advised.

Neither is experimental evidence available to show that soybean meal is the cause of ketosis or acetonemia in dairy cows, he added. This disease occurs in high producing dairy cows apparently as a result of an insufficient intake of carbohydrates.

"Soybean meal is a highly nutritious protein supplement suitable for and widely used in dairy cattle feeding. However, it shows few, if any, points of nutritional superiority over other protein supplements commonly fed to dairy cattle," Professor Nevens said in summarizing his discussion of the nutritive elements in soybean oil meal.

— abd —

Soybeans Rate Next to Corn in Acre Profit

SOYBEANS now rate next to corn in profit returned per acre on Illinois farms, stated R. H. Wilcox, associate professor of farm management, Jan. 7 at an Illinois Farm and Home week program.

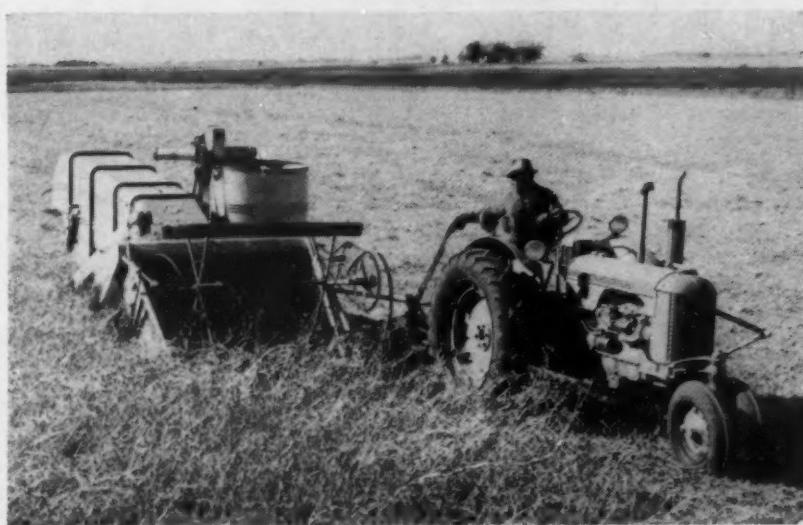
Corn returned a profit of \$10.52 per acre as a five-year average of 1935-39, while soybeans returned an average profit of \$5.85 over the same period, according to records kept on east-central Illinois farms.

Production Costs Drop

Without a charge for fertility removal, the average cost of producing a bushel of soybeans on this group of selected farms dropped from an average of \$1.50 for the five years 1922-26, to 56 cents for the years 1935-39.

The cost of producing a bushel of soybeans declined as the use of combines and other large-sized types of machinery

Two Powerful Allies of the Soybean



Above all other machines, the tractor and combine are the allies of the soybean farmer in the Mid-west. They've cut production costs until soybeans now are one of the Mid-west's most profitable crops. See story below, and also story on page 9.

increased and as the acre yield increased, Wilcox found. The cost was more than \$1 a bushel until 1931, when the average acre yield was 25 bushels, the highest yield harvested up to that time on those selected farms.

Production Labor Shifts

A major shift has taken place in proportions of horse, man and tractor hours used in soybean production from the early twenties, when soybeans were beginning to be produced commercially in Illinois, Prof. Wilcox's material revealed.

Man labor declined from 13.4 hours per acre in 1922-24 to 4 hours in 1936-39. In the same years, horse labor an acre declined from 29.1 hours to 1.5 hours, and tractor use an acre increased from .7 hour to 2.4 hours.

Combinations Important

The choice of what crops to grow and how many acres of each to plant will not always be governed entirely by the relative profitability of individual crops but

also by the most profitable combination of crops for the individual farm, Prof. Wilcox noted.

A combination of several crops in a rotation will in the long run, prove most profitable if they are well selected to give good labor and power utilization and, at the same time, to maintain soil fertility. Many of our corn-belt farmers are beginning to scrutinize the soybean crop on their farms on the basis of these points Wilcox believes.

— abd —

Soybean Meal Makes Good Turkey Ration

Soybean oil meal is superior to cottonseed meal and corn gluten meal as a protein source in turkey rations, L. E. Card, professor of poultry husbandry, told Farm and Home Week listeners in an address on the use of soybean oil meal in poultry rations.

Soybean oil meal may be used with excellent results for up to 10 percent of the turkey ration. In trials at the Missouri Agricultural Experiment Station, it produced better carcasses than cottonseed and corn gluten meals and feathers of the birds were full-colored, whereas cottonseed and corn gluten meal produced many white feathers.

Soybean oil meal can be used with good results for as much as 75 percent of the protein-carrying feeds in the laying ration of chickens, Professor Card said. The remaining 25 percent, however, should be made up of some protein of animal origin.

Soybean oil meal in excess of 5 percent of the ration seems to lower the hatchability of eggs from breeding flocks. Moreover, soybeans in breeding flock rations interferes with the test for Pullorum disease, he warned.

RELATIVE PROFIT PER ACRE OF CROPS IN EAST-CENTRAL ILLINOIS

1935 - 1939

Crop	Acre-cost	Acre-yield (bushel or ton)	Price per bushel or ton	Profit or loss*
Corn	\$17.37	55	\$.51	\$10.52
Soybeans	15.51	28	.76	5.85
Wheat	14.74	23	.78	3.15
Alfalfa	17.91	2.25	8.60	1.81
Oats	12.62	40	.26	-2.33
Clover Hay	12.35	1	8.00	-4.41
Soybean Hay	19.60	1.8	7.20	-6.28
Clover Hay	14.62	2	8.00	1.58

*Minus sign denotes a loss.

The first clover figures are averages for all the farms under study in the five years 1935-1939. The yield an acre averaged one ton. With that average yield, the crop shows a loss. The second clover figures are averages for just those farms where the yield an acre was two tons. The big loss for soybean hay is explained by the high labor cost of harvesting, since a large part of soybean hay is put up only as a means of opening grain fields for the combine.

Scoff at "Protein Poisoning"

Ohio State Tests Show Even 51 Percent Protein Ration Produces No Visible Ill Effects

More liberal quantities of protein than have customarily been fed can be used to advantage in hog rations, particularly during the suckling, weanling, and growing periods, W. L. Robison, in charge of swine investigations at the Ohio Agricultural Experiment Station at Wooster, concludes from protein concentrate feeding trials with 70 shoats conducted from May 28 to Nov. 12, 1940.

No indication of toxemia or so-called "protein-poisoning" was observed even in rations containing 51 percent protein, Robison observed. A report of the experiments was given at the November meeting of the American Society for Animal Production.

The protein concentrate mixture fed contained 37.5 percent "browned extracted soybean oil meal," 12.5 percent expeller cottonseed meal, 25 percent herring fish meal and 25 percent dry-rendered, high protein tankage. This mixture contained 57.11 percent protein.

The shoats were divided into seven lots of 10 pigs each. They were given rations containing protein at 9, 17, 26, 34 and 51 percent levels. A sixth lot received a 15.4 percent protein ration for the first half of the trial and a 13.7 percent ration for the second half. The seventh lot was allowed free choice of the protein ration during the second, fourth and sixth four-weeks periods, but was allowed no protein concentrate during the first, third and fifth periods.

The high protein levels were not as economical as medium levels but produced much better results than rations containing no protein concentrate, Robison noted. The lot of pigs averaging the highest daily gains for the entire period and the lowest feed consumption per 100 pounds of gain was that receiving 17 percent protein in the ration.

This ration was made up of 76.4 percent yellow corn, 4.2 percent tankage, 4.2 percent fish meal, 6.3 percent soybean oil meal, 2.1 percent cottonseed meal, 2.9

percent ground alfalfa, 1.5 percent yeast, one-tenth of 1 percent codliver oil concentrate and 2.3 percent minerals.

When the data were examined by four-week periods, however, the higher protein rations of 26 and 34 percent showed slightly higher rates of gain and slightly less feed consumed per 100 pounds of gain during the first 8 weeks of the trials.

The lot receiving free choice of the protein concentrate in alternate periods showed high rates of gain and good feed converting efficiency in those periods in which they had access to the protein concentrate.

Average daily gains by four-week periods are plotted on the chart below for the rations containing no protein concentrate (9 percent protein in cereals and roughage fed), concentrate fed to bring protein level to 17 percent, 26 percent and 34 percent, and for the ration in which protein concentrate was fed free choice in the second, fourth and sixth periods.

— s b d —

Not Enough Protein To Balance Rations

We do not have enough protein concentrates to balance the rations of all our livestock, R. R. Snapp, professor of beef cattle husbandry at the University of Illinois, said in addressing a Farm and Home Week meeting at Urbana, Jan. 7.

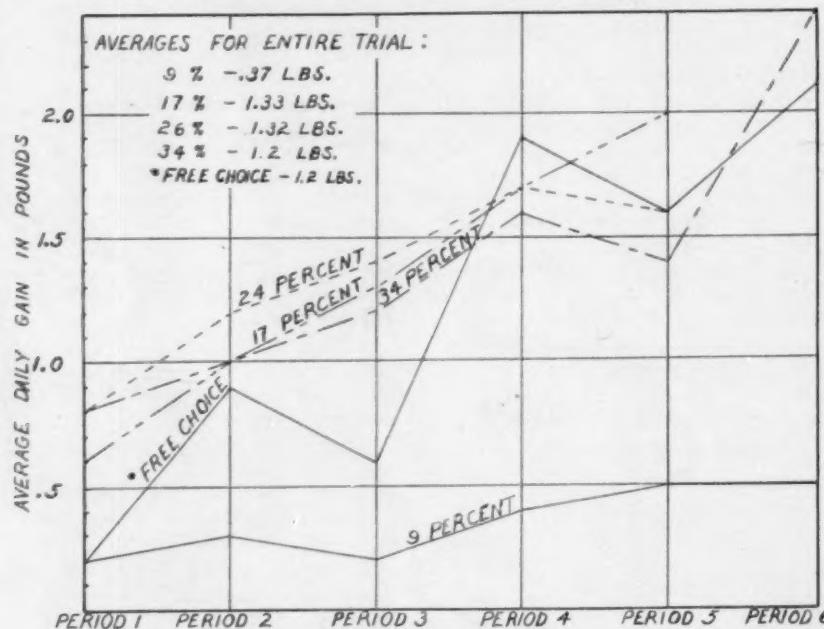
Soybean oil meal is fully equal to cottonseed meal for meat animal rations. Linseed meal produces a higher "finish," but usually sells for a higher price, Professor Snapp quoted as his observations from feeding trials conducted at Illinois.

Soybean oil meal is a perfectly safe feed for hogs, and can be used as the only protein supplement if mineral is added. If tankage is one-third higher in price, use soybean oil meal. If soybean oil meal is cheap, allow self-choice, he advised.

Professor Snapp expressed disbelief that soybean oil meal caused scouring in beef cattle. In all the experience of their beef-feeding trials at Illinois, they had only one drove of cattle that scoured on soybean oil meal, but the digestive systems of that drove were in poor shape at the start, he said.

Legume hay and shelled corn provides the best ration for fattening lambs, he said, but soybean oil meal makes an excellent protein supplement for grass, mixed hay or silage.

AVERAGE DAILY GAIN BY LOTS OF 10 SHOATS FED VARYING LEVELS OF PROTEIN AT THE OHIO AGRICULTURAL EXPERIMENT STATION IN 1940, GIVEN BY FOUR-WEEK PERIODS



Erratum — The figure "24 percent," on the upper line of the graph, should read "26 percent."

*This lot of pigs received no protein concentrate in the first, third and fifth periods, but had free choice of the protein concentrate during the second, fourth and sixth periods. The data for lots receiving 17 and 26 percent protein include only 21 days of the fifth period, and the data for the lot receiving 34 percent protein only 5 days of the sixth period. The pigs ranged from 60 to 71 days of age at the start of the experiment, May 28. Average final weights for the lots of different protein levels were: 9 percent, 101.9 pounds; 17 percent, 223.4 pounds; 26 percent, 221.7 pounds; 34 percent, 218.7 pounds; free choice, 240.8 pounds.

Why Dock Tar Heel Soys?

By Buxton White, Marketing Specialist, North Carolina Department of Agriculture

Low Oil Content, High Moisture, Poor Yield, Loss Of Export Market, Plague North Carolina Growers

WITH soybean prices on the Chicago exchange reaching and passing a dollar a bushel, North Carolina farmers were wondering "out loud" last December why local farm prices were no better than the offered 55 to 65 cents per bushel which prevailed until recently. The gap between these prices was extremely abnormal, prompting growers to withhold their beans from sale while applying to the state department of agriculture and other agencies for assistance with the problem. Several local meetings have been held to consider the situation.

While eastern North Carolina was the birthplace of the soybean industry in North America, and the crushing of soys in this country first began in Elizabeth City, N. C., in 1915, more recently production in this state has been eclipsed by the phenomenally rapid development of the industry in the Mid-west. Since the American discovery and rise to maturity of little Soja Max, however, North Carolina has become competitively handicapped, which accounts for some of the difference in price between southern and western beans. The first step toward mitigating the circumstances would be a clearcut understanding of some influencing factors which are largely responsible for the situation.

Farm Prices Independent

First, it should be recognized that Chicago quotations are grain board speculative prices and not spot buying prices at the farm. Ninety-five percent of the crushing capacity of the West is located outside of Chicago. Twenty-five percent of the total crushing capacity of the entire country is located at Decatur, Ill., which is in the heart of the soybean area of the Mid-west, and a substantial portion of the beans processed by these mills is trucked to Decatur by producers without freight cost to the purchasers. Hence, prices paid to western growers at the farm would furnish a better basis for comparison with local prices than Chicago quotations, even though they are highly valuable as indicators of market trends.

The mill price for soybeans should be largely determined by the value of the two primary products obtained from crushing—oil and meal. Therein lies a considerable difference between western and southern beans. Specifically, the average oil content of more than 200 samples analyzed at one plant serving this state last season was 16.2 percent; whereas the average of beans purchased at Peoria,

Ill., by the same company ran 19.8 percent oil, a difference of 3.6 percent oil content in favor of the western beans. At oil prices of about 4 cents per pound at the plant, this accounts for approximately 9 cents per bushel differential in value.

Moisture Unfavorable

Likewise, moisture content compares to the detriment of North Carolina. Illinois and Indiana soys normally average between 10 and 12 percent moisture; whereas the beans secured from the Tidewater area last season averaged 14.7 percent moisture content. Naturally, low moisture is a desirable factor in influencing processing returns.

Another point to consider is that the soybean producing area of the South is not comparatively a large consumer of soybean oil meal. On the other hand, the Mid-west, which produces the bulk of the soybean crop, also produces large quantities of cattle, hogs and other livestock and is a consistent user of soybean oil meal. Of course, no one can criticize the North Carolina farmer, who raises cotton and uses cottonseed meal for feed and fertilizer, for not buying soybean

Meal Sold Outside

The bulk of the soybean meal produced in the South, therefore, must be marketed outside of the territory in which the beans are grown. Most of it is sold north

of the southern boundary of Pennsylvania, in territory strictly competitive with western mills. Last season one crusher utilized more than 18,000 tons of local beans, producing approximately 15,000 tons of meal. Of this only about 4,500 tons were mixed or sold in this territory, while approximately 10,500 tons were shipped north in competition with the West after adding freight charges.

Last year between 11 and 15 million bushels of American soybeans were exported, principally to Denmark and Holland. Some of the seaboard plants were located with the expectation of an export demand for both beans and meal, but economic conditions have not been such as to permit soybean meal export in quantity. Since countries desirous of securing the oil had their own processing facilities it was not to their best interest to import meal from this country. Anyway, with conditions in Europe what they are today, there is little possibility for further exports of soybeans from the United States until the present war ends.

Competitive Supplies Up

The crop estimate for national production of soybeans this year is 79 million bushels, compared with 87 million bushels the previous year, a reduction of 8 million bushels, while North Carolina's 2,254,000 bushels for 1940 is 11 percent greater

(Continued on page 10)

Expansion Possible in Many Lines

Livestock feeds, fertilizer, industrial products and human consumption offer lines for expansion of soybean meal utilization, J. W. Hayward, director of nutritional research at the Archer-Daniels-Midland Company, Minneapolis, Minn., said in a talk entitled "Building the Market for Soybean Meal," given at Farm and Home Week on the University of Illinois campus at Urbana Jan. 7.

The livestock industry needs more protein supplements than it is now using to balance its rations, Mr. Hayward said, thus making feasible further expansion of the use of soybean oil meal as a livestock feed.

Processing steps up the growth producing properties of soybean meal, and makes essential amino acids more available. Sixty-five percent of 1939's record production of 91 million bushels were

processed, according to figures quoted by Mr. Hayward.

Soybean oil meal has been found to be an excellent fertilizer for tobacco and for lawns, Mr. Hayward pointed out. Its nitrogen content becomes available steadily and slowly, and at current meal prices, costs only about 19.7 cents a pound, which is a cheap source in comparison with cottonseed meal, tankage and fish meal. He recommended its use for lawns at the rate of 100 pounds per 2,000 square feet.

A field in which considerable interest is being shown at present is soybean flour and edible bean varieties. About 25 million pounds of soybean flour are being produced annually, he said.

In an effort to increase the market for soybean meal, processors are now tailormaking the meal to suit best the different methods of utilization, Mr. Hayward emphasized.

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GEO. M. STRAYER, Editor

J. W. TOWNSEND, Managing Editor

VOL. I · NO. 3

ELSEWHERE in this issue you will find the dates of September 15 and 16 announced as the convention dates for the American Soybean Association this year. To be held in Iowa this year, convention headquarters will be at Des Moines.

We urge you to red pencil those dates on your calendar today — save them for this annual pilgrimage of soybean men to the shrine of their devotion. Join the growers, handlers, processors and users of soybeans in their trek. At no one gathering in America will you find so diverse and so many soybean interests represented as at this convention. As plans unfold they will be carried in *The Soybean Digest*. Watch for them.

IMIGHT almost say that soybeans and I grew up together. My first remembrance of them was back in the days when Dr. W. J. Morse was putting out small samples of increases from his importations. We planted them in a small patch of popcorn, pulled them by hand, and threshed them out with a flail. The intervening years have taught me many things about the crop.

One of them is concerned with the vague idea which many persons have concerning the uses which are being made of soybean meal. Nation-wide publicity has been given to soybean plastics. Everything from automobiles to plane fuselages to radio cabinets to jewelry is being made from soybeans, if you can believe the stories. We would like to believe them. Yet, according to the best available figures less than one-half of one percent of the 1939 soybean oilmeal production went into those plastics. Less than five percent of the nation's total soybean oil meal production went into uses other than livestock feed. Glues, human food, plastics, core molds, and all other industrial uses are included there.

Probably no other one farm product has so many potential commercial uses as soybean oilmeal. Commercial production of it in this country is relatively new. The development of new uses requires time — assurance of a steady source of supply, and assurance

of a supply at a relatively stable price. We hope — and expect — that soybean oilmeal will be used in increasingly larger quantities in industry. Until that time arrives we must reconcile ourselves to the fact that the soybean oilmeal market lies on the farm.

A second salient fact which has come to my attention is the over-enthusiasm of some individuals. Soybeans, in their estimations, are destined to solve all the problems of the world. The most lurid of the tales are being eliminated from the headlines, but there is still room for improvement. One of them cropped up recently in a southern farm journal. In that story soybeans were the answer to all the farmer's prayers. We wish that were true, but we must face the facts and regard them as they are — America's fastest growing agricultural crop. Too, we must recognize that the rapid increase may get us into trouble before many years have passed — overproduction of a commodity is worse for the producer than is underproduction. It is unwise that new producers be enticed into the production of soybeans by misinformation.

LAST month we called attention to the move on foot to increase the import duty on vegetable oils shipped into Cuba. Now, however, the move seems to have been forestalled. Instead, Cuba has suspended the consumption tax of one cent per pound on all fats and oils, as related in the story on page 10.

If, as this seems to indicate, there is to be no import duty on fats and oils taken into Cuba, it means the equivalent of an increase of one cent per pound on the price of oils shipped into Cuba, including American lard and soybean oil. Fully as important, the Cuban market will be opened up to cheap South American oils, and there will be less competition from them in our own country. The Reciprocal Trade Agreement policy of the United States seems to have borne fruit in this case.

Geo. M. Strayer

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Oil Intrinsically Most Valuable

To Expand Production of Soybean Oil, We Must Find Uses Outside Edible Fields, Says Milner

Oil is intrinsically the most valuable product of the soybean, Dr. R. T. Milner, director of the United States Regional Laboratory at Urbana, Ill., said in addressing a Farm and Home Week audience at the University of Illinois, Jan. 7.

The price is low and the supply stable, both important points from the industrialist's viewpoint. Its properties are midway between those of linseed and cottonseed oils, it being a mixture of the glycerides found in those oils.

To expand production of soybean oil, uses must be found outside the edible field, where 82.5 percent is used for shortening, margarine and salad oil, was the belief expressed by Dr. Milner. About 6 percent is now being used in the protective coating industry, where it competes with foreign oils.

Refined soybean oil can be used to make up to 25 percent of the oil content of paints without noticeably affecting the drying properties of the paint, Dr. Milner stated. Interest in a quick-drying fraction from soybean oil has been increased, however, by the stoppage of imports of tung oil from China, formerly used in lacquers, varnishes, and quick-drying paints such as employed for traffic stripes on highways.

The problem of lending quick-drying properties to soybean oil has been attacked by both chemical and physical means. Physical methods at present seem to offer the most economical means, and are being developed in experimental laboratories.

Treatment with an acid-anhydride has been found to increase the drying properties and durability, and a method of fractionization can step the iodine number from 130 up to 148. Further development of such a method should make it

possible to utilize as much as 30 percent of the soybean oil production in the paint industry, Dr. Milner estimated.

Two important problems in storing oil are the prevention of rancidity and reversion, Dr. Milner said. An objective test for reversion has been developed, and experiments conducted with storage at various temperatures, in the dark and in the light, indicate low temperatures and darkness as the best means of storing to prevent rancidity or reversion.

—sbd—

Competitive Products Set Soybean Price

COMPETITION of other feedstuffs with soybean meal and of other oils and fats with soybean oil has more influence on the price of soybeans than the crop itself, L. J. Norton, professor of agricultural economics at the University of Illinois, told a Farm and Home Week audience at Urbana Jan. 7.

Soybean meal as a feed is the only important outlet of that product at the present time in spite of a vast potential outlet in industrial channels, Professor Norton said. Ninety-five and three-tenths percent of all soybean meal is sold for feed, compared with .1 percent used in industry, 1 percent in fertilizer and 3.6 percent exported.

Soybean oil meal must compete indirectly with all feedstuffs and most directly with the high-protein feedstuffs, chiefly the oil feeds. The estimated total production of these was about 4 million tons in 1940, the largest on record and one-third more than the 1928-32 average.

This increase in production of high protein feedstuffs as a group has lowered their prices relative to the prices of feed

grains. Of these 4 million tons, cottonseed meal represents about 50 percent, soybean oil meal 32 percent, and linseed meal about 12 percent.

The tonnage of soybean oil meal is large enough to be a price leader along with cottonseed meal, Professor Norton observed. Soybean oil meal has gone ahead of linseed meal in this respect in the last 10 years.

Expansion of the market for soybean oil has been on a strictly price basis, Professor Norton stated. Soybean oil averaged 4.3 cents per pound in November as compared with 4.6 cents per pound for cottonseed oil, 5.6 cents for corn oil and 5.5 cents for cocoanut oil, including tax.

Although soybean oil as a semi-drying oil can be used as a partial substitute for more expensive drying oils in such industrial uses as paint and core oils, soybean oil is now used principally as a food oil in the manufacture of cooking compounds and margarine. In these uses it is most directly competitive with cottonseed oil and indirectly with lard, Professor Norton said.

—sbd—

Arkansas Group Elects

G. H. Banks of Osceola, Ark., formerly a director and acting secretary of the American Soybean Association, was elected president of the Arkansas Seed Growers' Association at its annual meeting in Little Rock, Ark., Jan. 16.

He is assistant manager of the Ralston Purina branch plant at Osceola, and vice chairman of the Arkansas Farm Chemical Council. For 11 years he was in charge of the Arkansas College of Agriculture Branch Experiment Station near Stuttgart.

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Soybeans . . . and People



Most any Dish from Soup to Nuts Prepared from Soybeans

SOYBEANS may be used in any way that other fresh vegetables are used, state home economists at the University of Maryland, College Park. They may be served buttered, scalloped, creamed or with a cheese sauce.

Flora Waldman Reid even prepared pie filling and cookies from soybean pulp. In all, she listed nine suitable recipes for using soybeans, in a master's thesis prepared on the uses of Rokusun soybeans.

Through the courtesy of Claribel Welsh, head of the foods and nutrition department at the University of Maryland, *The Soybean Digest* presents them as a feature of the "Soybeans and People" page.

(All measurements are level)

PUREE OF SOYBEAN SOUP

1 cup soybean pulp
1 tablespoon finely chopped celery leaves
2 tablespoons chopped onion
* $\frac{3}{4}$ cup meat stock
1 tablespoon flour
 $2\frac{1}{2}$ cups milk
1 tablespoon butter
1 teaspoon salt
 $\frac{1}{2}$ teaspoon pepper
* A bouillon cube in water may be substituted for the meat stock.

Cook the soybean pulp which has been put through a coarse sieve, with the celery, onion and meat stock. Add it to a sauce which has been made of the other

ingredients. Serve hot with crackers or toast. Serves 6 persons.

BAKED SOYBEAN CROQUETTES

1 cup tomatoes (drained)
2 tablespoons minced onion
4 tablespoons flour
2 tablespoons butter
1 teaspoon salt
3 cups soybean pulp
1 $\frac{1}{2}$ cups diced celery
Corn flakes
Egg and milk mixture

Add minced onion and salt to tomatoes and bring to a boil. Rub the flour and fat together, add to boiling tomatoes, and cook to a thick paste. Cool and add to mixture of celery and soybean pulp. Shape into croquettes; roll in corn flakes. Dip into egg and milk mixture and roll again in corn flakes. Place on a greased sheet and bake in a moderately hot oven, 410° F. for 20 to 30 minutes. This amount makes 12 croquettes.

SOYBEAN PERFECTION SALAD

1 cup canned soybeans (whole or pulp)
1 cup shredded raw cabbage
1 cup shredded raw carrot
1 tablespoon minced green pepper
1 pkg. lemon gelatin
1 pint water

Add to the mixture of vegetables the dissolved gelatin which has been cooled until it is partially thickened. Mold in a pan $1\frac{1}{2}$ inches deep and cut in squares or mold individually. Serve on lettuce with mayonnaise. Serves 8 to 10 persons.

SOYBEAN DROP COOKIES

$2\frac{1}{2}$ cups flour
 $\frac{1}{2}$ teaspoon salt
4 teaspoons baking powder
 $\frac{3}{4}$ cup fat
 $1\frac{1}{2}$ cups sugar
2 eggs
 $2\frac{1}{2}$ cups soybean pulp
 $\frac{1}{2}$ cup milk
1 teaspoon lemon flavoring

Sift together the flour, salt and baking powder. Cream the fat and sugar. Add beaten eggs and soybean pulp. Add milk and sifted dry ingredients alternately. Drop by teaspoons on a greased baking sheet and bake 20 minutes in a moderately hot oven 410° F. This amount makes 7 dozen small cookies.

ROASTED SOYBEANS

Roasted soybeans are somewhat like roasted peanuts in flavor. They can be used in candy or eaten salted.

Method 1: Spread the canned soybeans in a shallow pan and roast in a moderate oven, 350° F. until browned. Sprinkle them with salt while they are still warm.

Method 2: Dry the surface of the canned beans and fry in deep fat, a few beans at a time, for 5 to 8 minutes, depending upon the size of the beans (temperature, 350° F.). When they are slightly brown and crisp, drain, salt and use as salted peanuts would be used.

(Additional menus from Miss Reid's thesis will be given in the February issue of *The Soybean Digest*.)

—sbd—

President Gets Thrill From Soybean Digest

I hope that each and every soybean enthusiast is getting the same thrill and satisfaction out of the issues of *The Soybean Digest* as I am. This statement can be made by me with modesty as I have had practically nothing to do with the two copies already published. To George M. Strayer, and those who have given him wise counsel, we should doff our hats!

Previous to our first issue I had the opinion that I was fully aware of the value of such a publication to our soybean association and associated interests but now, after having had the pleasure of reading two issues and receiving the many favorable comments by mail and otherwise, I must admit I was far too conservative as to the possibilities.

Congratulations to you, George, and to the wise old heads who have helped you. You are young in years. You and the *Soybean Digest* can develop together, and the soybean industry will reap the benefits.

G. G. McIlroy, President,
American Soybean Association.

Combine Is Most Important Development In Soybean Machinery, Says Burlison

"The grain combine is the most significant change in tools used for the production of the soybean," stated Prof. W. L. Burlison, head of the department of agronomy at the University of Illinois, speaking before a Farm and Home Week audience at Urbana, Jan. 7.

Time of seeding soybeans is 20 days earlier than when beans were first introduced, he said, tracing trends in cultural and harvesting practices affecting yields and market quality of soybeans. The amount of seed used per acre also has increased by 20 to 30 pounds and up, he observed.

The distance between rows is coming back as a problem in Illinois, after once being considered as solved, he noted, and the interest shown in that point by the discussion in the audience following his address confirmed that observation. Ninety percent of the beans sown still are seeded solid in Illinois, although seeding in rows 21 to 30 inches apart has been shown to produce maximum yields.

One grower said he had solved the problem of getting approximately the optimum distance between rows by stopping every other hole in his grain drill, and then fitting his row-crop cultivator

with just enough shovels to cultivate between the bean rows.

More money has been spent in the search for new varieties than on any other phase of cultural research, Professor Burlison stated, and finding of new varieties has been responsible for increase in yields from an average of 10 to over 20 bushels per acre. Recent emphasis in research is being placed on industrial utilization, varieties of edible beans, effect of soybeans on fertility and erosion, and on crop rotations.

Last season's decline in average per acre yield may have been due to a combination of factors, Professor Burlison said. An exhausted element of the soil, poor seed condition, lack of water, hot weather at time of flowering and weeds were factors suggested.

The soybean research program has been most satisfactory of all programs at Illinois, Professor Burlison stated. It was started there almost 45 years ago, although not much was published for the first 20 years.

"The Chief" is the newest variety developed at the Illinois station and being distributed generally this year for the first time.

Fire Destroys Iowa Elevator

Soybeans comprised the major share of 20,000 bushels of grain lost in a fire which destroyed the widely-known J. Roach Sons, Inc., elevator at Plainfield, Iowa, Jan. 10.

Origin of the blaze was unknown, but apparently started, according to Howard Roach, in a mill section into which a carload of soybean oil meal had been unloaded three days before.

The loss, estimated at \$40,000, was covered by insurance. Part of the structure was the original building erected by John Roach, pioneer northeastern Iowa farmer, feed and stock buyer, 75 years ago.

The elevator will be rebuilt, members of the Roach firm said. E. A. Roach is the senior member of the firm, and the son of the founder. His sons, Howard and James, are the junior members of the firm. Howard Roach is also a member of the board of directors of the Soybean Processing Company of Waterloo.

—sbd—

Ten prizes totaling \$26 are offered for the best peck of soybeans at the thirty-eighth State Corn and Small Grain Show held in connection with Farm and Home Week at Iowa State College Feb. 12 to 16. Entries must be from a member of the Iowa Corn and Small Grain Growers' Association, and grown in Iowa.

Wanted . . . MILLIONS OF POUNDS OF SOYBEAN OIL

- In the light of expanding Soybean production and curtailed foreign markets, sales of Soybean Oil to Margarine manufacturers must be substantially increased. Today manufacturers of Margarine should be using many millions of pounds of Soybean Oil per year in addition to the 82,333,941 pounds used during the Federal Fiscal year ending June 30th, 1940.

Consumers all over America want to buy Margarine made from Soybean Oil, but in many States they seldom get the chance. Discriminatory State and Federal Taxes hinder the sale of this Soybean Oil product. They deny American farm producers a legitimate market for their oils and fats and milk. These taxes are unfair to the growers of Soybean, corn and peanut oils and animal fats. They should be repealed. For years the Institute of Margarine Manufacturers fought to have them repealed. Now — with your help — the fight can be won.

Get in touch with your State — your Federal Legislators. Write to them. Urge them to get behind this campaign for repeal of these unfair, un-American Tax Laws.

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Cuba Suspends Consumption Tax; Action Seen As Answer To Rumor of New Tariff

Effective Jan. 1, the Cuban Government suspended the consumption tax of 1 percent on all oils and fats, according to information received from Harry C. Hawkins, Washington, D. C., chief of the division of commercial treaties and agreements, department of state.

The suspension of this tax applies to imported as well as domestically produced oils and fats. Last year Cuba imported over 100 million pounds of fats and oils, a part of which was soybean oil from the United States.

Concerning an inquiry about a proposed increase in the Cuban import duty on soybean and other vegetable oils, the

state department said:

"It would appear from the information given above that such rumors incorrectly referred to the action which has now been taken by the Cuban Government suspending the consumption tax on all fats and oils."

—*bd—

Why Dock Tar Heel Soybean Prices?

(Continued from page 5)

than in 1939. On the face, these figures look very favorable until the prohibition of export for the present is considered. Then, too, soybean oil and meal are

highly competitive with those of cottonseed and peanuts and on this score there is no encouragement with cottonseed increased 10 percent and peanut supplies almost a third over last season. Too, livestock population of the country is reported four percent lower than in 1939, restricting somewhat the largest consumptive demand for soybean meal.

Loans Sought

So, there arises a serious question of finding a sufficient market to justify satisfactorily profitable prices for the soybean farmer under existing conditions. Pressure has been brought to secure government loans to farmers on soybeans, but the federal department has not seen fit to grant the requested assistance. For the present, therefore, it appears that soybean supplies are quite adequate for domestic demand until exports can be resumed to help establish price levels more commensurate with some other farm crops.

Farmers Act

Soybean farmers have taken probably the most logical immediate action in protecting their interest by abnormally slow movement of their bean crop into the channels of trade. Most likely, the refusal of farmers to sell freely has been the chief cause of strengthening market prices, but a note of caution should be sounded to holders against overplaying their hands in this respect. If prices should be forced beyond sound economics and become top-heavy, buyers might be backed off to the point of market collapse. When price structures fall there can be no assurance of where the bottom will be established. Market news and Chicago quotations should be watched carefully as a guide in this connection, and discretion should be exercised to avoid getting caught with the proverbial bag, if bunched liquidation should develop.

Must Overcome Handicaps

If North Carolina expects to continue growing soybeans as a cash crop, which is desirable for many reasons, certain facts must be recognized and rectified to nullify present handicaps. The nationwide seed market on which soybean culture originated and grew in this state is a thing of the past to a large extent and the major outlet for Tar Heel soybeans today is the crushing mill. The prodigious expansion of the industry in the Mid-west has created an aggressive competition for local soybean producers. The advantages enjoyed by western beans are greater yield per acre, higher oil and lower moisture content, coupled with more consumptive demand for soybean products within their producing areas.

In 1938, according to official reports, North Carolina averaged only 13 bushels of soybeans to the acre and in 1939 state production averaged a mere 12½ bushels, while competing states nearly doubled these yields with beans of higher processing value.

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Dairymen Study Growth Of Soybean Production

Polk County, Iowa, dairymen noted that the shift in Iowa crop acreages to include more soybeans has greatly increased dairy feed supplies, in a forum discussion Jan. 7 sponsored by the Polk County Farm Bureau and the county dairy council, at the Hotel Savery in Des Moines.

That quantities of soybean oil are now going into the manufacture of margarine and shortening also was noted, but a large part of oil so used has simply replaced imports of foreign oils, bean processors explained.

— abd —

Futures Trading Regulated

Futures trading in soybean oil, soybeans and soybean meal is now subject to provisions of the commodity exchange act, reports J. M. Mehl, chief of the commodity exchange administration.

A number of commodities, including lard, tallow, cottonseed, cottonseed oil, cottonseed meal, peanuts, and peanut oil, were also included in the list of commodities placed under provisions of the act on Dec. 9, 1940. The act prohibits unfair trade practices.

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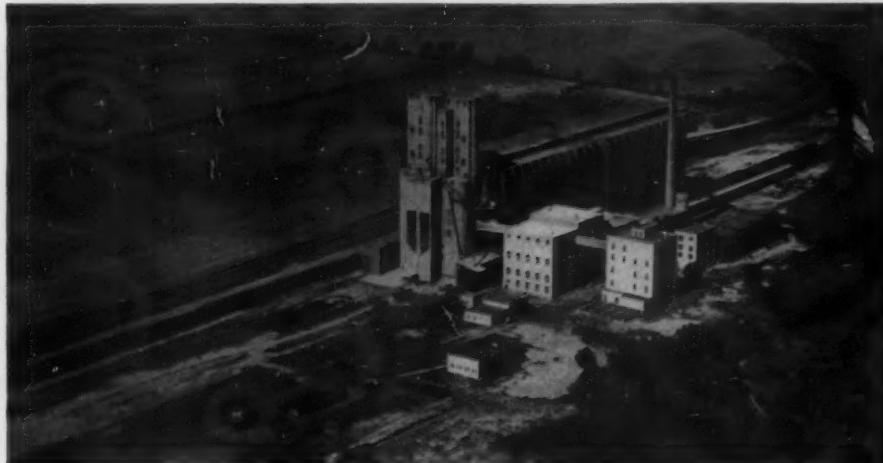
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Members of the American Soybean Association may list varieties of which they have seed for sale in the Seed Directory of The Soybean Digest. Up to three varieties may be listed throughout the seed trade season, January, February, March and April issues, for a charge of \$1 to Association members. Additional varieties may be listed at the same rate, three for \$1. If you are not a member of the Association, but wish to list varieties in the Directory, see back cover for membership fees and instructions.

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Strayer Seed Farms, Hudson, Iowa.

1940 Quality Drops

The quality of the 1940 soybean crop appears to be slightly below that of the 1939 crop, based upon inspected receipts during December, reports H. H. Whiteside, Chicago representative of the Agricultural Marketing Service of the United States Department of Agriculture.

About 74 percent of the soybeans inspected during December graded No. 3 or better compared with 85 percent during the corresponding month last year. Excess moisture and foreign material were important de-grading factors.

Inspected receipts of soybeans at Chicago totaled 2,086 cars during December, the first month in which inspections were made under the United States Grain Standards Act.

—sbd—

Soybeans Included In Crop Sales Report

Soybeans were included for the first time in the 1940 report on "Monthly Sales of Principal Field Crops," issued by the agricultural marketing service of the United States department of agriculture.

Issued in November, grain sorghum, soybeans, dry edible beans, hay and buckwheat also were added to the list of principal field crops included in the report. Following is the report for soybeans:

"Farmers' sales of soybeans of the 1939 crop during the fall months September to

Market Street

We invite the readers of *The Soybean Digest* to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here.

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November amounted to 65 percent of all sales during the crop marketing year. Forty percent of the year's sales occurred in October, the month of peak sales.

"This represents a slightly slower rate of fall disposal than in 1938, when 70 percent of the year's sales were made during September to November, and October accounted for half the year's sales.

"Sales right after harvest bulk larger in the North Central states than in other areas."

"The estimates are based on reports from interior mills, elevators and warehouses showing quantities purchased from farmers by months and reports from farmers showing sales by months.

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Cleanliness, Ventilation are Keys to Successful Storage of Soybeans

Each soybean is a living, breathing organism, taking up oxygen and giving off carbon dioxide and moisture as a normal part of the maturing process in storage, declared Harold Wilbur, elevator superintendent of the A. E. Staley Manufacturing Company at Decatur, Ill.

He was speaking before a Farm and Home Week audience at the University of Illinois Jan. 7, on the handling of soybeans to prevent loss of quality in storage.

The rate of the soybean's respiration is influenced directly by temperature and moisture content, increasing with higher temperatures and moisture content. If the soybean isn't given an occasional breath of fresh air, a vicious circle may be set up: heating begins, the respiration rate steps up thus developing even greater temperatures, and resulting finally in severe damage, Wilbur said.

Storage Tips

For successful farm storage of soybeans use small wooden bins, make sure they are clean by thorough sweeping before the beans are put in them, and have the beans cool, mature, free of foreign materials, and below 15 percent in moisture content. Spade the tops of the bins occasionally, to break any packed and moisture-laden layers that might prevent circulation of air in the lower layers.

Cleanliness is especially important because the eggs of the Indian and Mediterranean meal moths are found in trash about grain bins. The larvae of these months form webs that seal the surface of the bins, resulting in heating of the beans.

Moisture content is important in storing soybeans because a difference of 1 percent may result in a difference of 10 percent in the rate of respiration. An hour in the field, too late or too early, may result in a loss, Mr. Wilbur warned.

Maturity of the beans is important because the respiration rate is high in the

Soybean Meal Isn't "Dangerous Cargo"

(Continued from page 1)

pany's experience with a great number of soybean meal shipments, both large and small, were "fairly indicative" of the incombustibility of the product.

The brief summed the report of the chemical engineers in a comment of Dr. Howard File, chief chemist of the Staley plant, on tests made with the Mackey apparatus: "It is evident that these products are entirely outside of any danger range. Our results also show that neither particle size nor oil contents have any noticeable effect on the temperature rise."

The Mackey apparatus is a laboratory device to test materials for a tendency to heat spontaneously.

immature bean. Immature beans also are more susceptible to bacterial organisms.

Cleanliness and proper care at the start provide the best answer to the problems of farm storage, Mr. Wilbur emphasized. Avoid abrasions and bruising of the bean, as its viability is impaired by such treatment.

Sees Demand for Seed Of Edible Soybeans

Seedsmen will be stocking seed of edible soybeans as demand warrants, says the Dec. 27 issue of *The Seed World*.

The backyard gardener should be interested in this bean, since it is much freer from insect and disease pests, such as the Mexican bean beetle, than lima and string beans, the article points out.

It is drouth resistant, more productive, and some people prefer the flavor of the soybean to that of the lima or any other bean, states the magazine.

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World War II finds the United States producing, thanks to soybeans, the major portion of fats and oils consumed. That was not true in World War I—when America started a mad scramble to obtain fats—any fats—to supply her domestic needs. Today's self-sufficiency will better enable her to stay out of the present conflagration.

And, strange as it may seem, the oil is not the most valuable part of the soybean, but is only incidental to the production of proteins for human and livestock needs.

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J. B. Edmondson, Secretary-Treasurer,
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January, 1941

I, _____, herewith transmit my annual membership dues of \$1.50 in the American Soybean Association, \$1 of which is for a year's subscription to *The Soybean Digest*. Send it to the name and address given below.

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